Last resort lending before Henry Thornton? The Bank of England's role in containing the 1763 and 1772–1773 British credit crises

Last Resort Lending before Henry Thornton? The Bank of England's Role in Containing the 1763 and 1772-3 British Credit Crises

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Abstract: Claims that the Bank of England began to act as a Lender of Last Resort as early as the mid-eighteenth century date back to Adam Smith and. Henry Thornton. This article presents evidence on the Bank's financial market interventions during the 1763 cand 1772-3 crises, and concludes that although the former was too gradual to be truly representative of last resort lending by 1772 the means of intervention described by Thornton were largely in place. Although direct evidence for the Bank's decision making process on either occasion is lacking, the universal contemporary conviction of its unique resources and obligations make it unlikely that it was entirely motivated by political considerations or cronyism. Its actions are instead consistent with Thornton's crisis containment narrative of banknote loans to London bankers, which in turn was the optimal response for containing financial contagion by ensuring the continued health of the bills of exchange network.

Keywords: Financial Crises, Eighteenth Century, Lender of Last Resort, Bank of England

JEL Codes: B12, E58, G01

The responses to the outbreak and spread of financial crises often incorporate a Lender of Last Resort (henceforth: LOLR), whose purpose is to provide emergency support to the financial sector, and ultimately to protect the wider economy from the effects of financial contagion. The LOLR is usually identified with the domestic central bank of the country experiencing the crisis, though the concept has been extended to an international role with responsibility across national boundaries.[1] The emergence of the LOLR is usually presented as a gradual nineteenth century British development, with its mature form emerging around the time Walter Bagehot's *Lombard Street* appeared in 1873 (Bagehot 1873, Schwartz 1987, Capie 2007, Kindleberger 2007, Bignon et al 2012, Turner 2014, pp. 140-54). While "Bagehot's Dictum" is its best known formulation, the ultimate theoretical roots of the LOLR are traced to Henry Thornton's *Inquiry on the Paper Credit of Great Britain* (Thornton 1802), with a nod to Sir Francis Baring as the parent of the term itself (Baring 1797, pp. 19-20).[2] Claims for earlier instances of the practice reach back into the Eighteenth (Kindleberger 2000, p. 162, James 2012), echoing no less an august authority than Adam Smith who in the *Wealth of Nations* repeated the rumour that the Bank of England, in its guise 'not [of] an ordinary bank, but of a great engine of state'

> upon several different occasions, supported the credit of the principal houses, not only of England, but of Hamburgh and Holland. Upon one occasion, in 1763, it is said to have advanced for this purpose, in one week, about 1,600,000l. ; a great part of it in bullion.[3]

The suggestion that a LOLR (an international one, no less) existed in the Eighteenth Century has been challenged from the side of the literature on Free Banking, specifically for the case of Scotland. Though it is universally accepted that the modern conception of a central bank as a monopoly note issuing, quasi-governmental entity did not apply on either side of the Tweed in this period, the Free Banking analysis has also controversially presented the multipolar Scottish banking system before 1844 as inherently crisis-resistant, and consequently not in need of the safety net of a LOLR, official or unofficial, even had one been available (White 1984, 1990, Dow and Smithin 1992, Rothbard 1988, Secherst 1988 and 1991, Gorton 1985, Cowen and Kroszner 1989).[4] The severe impact of the 1772-3 credit crisis in Scotland presents a notable contradiction to this narrative, but the possibility that the country's financial system may have been stabilized by an external LOLR rather than by the supposedly intrinsic merits of its multi-polar structure had been waved off without much elaboration until recently (Goodspeed 2016). In general, it has been rightly pointed out that the often vigorous Scottish Free Banking debate has been based on a small number of –admittedly seminal- secondary works rather than on original sources (Munn 1991). This paper will endeavour to remedy this deficiency, at least as far as 1772-3 is concerned.

Backdating a modern central banking concept to a period when the Bank of England was as much a private company run for profit as it was a "great engine of state" does present its pitfalls. Nevertheless, the potential presence of last resort lending in the middle of the Eighteenth Century goes beyond a mere extension of periodisation, or a search for superlatives of dubious historical value. On this last point this paper will *not* argue that the importance of Bank of England's actions in this period lies in that they were unprecedented (though they probably were), nor that what happened in Britain could not have been repeated elsewhere in Europe. What is of interest instead is that substantial, rapid and (in the case of 1772 especially) sophisticated crisis containment measures were deployed by the Bank with little controversy, some thirty years before the earliest theoretical formulations of the LOLR concept were articulated. The period immediately following the end of the Seven Years War has moreover been described as defining a watershed in the nature of British financial crises, from mainly problems of public finance often influence by foreign affairs, to endogenous private credit failures coming on the heels of economic overexpansion (Hoppit 1986, Price 1973, p. 639). The 1772-3 episode in especially notable for having taken place in the middle of relative peace, a rare enough occasion in an era of almost constant European conflict, while the rapidity, geographical extent, and apparent sequential nature of its propagation has suggested the presence of financial contagion (Kindleberger 2000, p. 224). Even if the latter cannot be conclusively proven, it would be at least an interesting coincidence if this period witnessed the development of public containment responses to merely *perceived* contagious threats to the wider payment system arising from failures of private credit. In turn, this could serve to highlight that the Bank of England was at least partly concerned with ensuring the continued smooth operation of the private financial system, even though it was still above all a chartered banking monopoly primarily serving the funding needs of the fiscal-military state. Narratives of the Bank's transition from this role to that of a modern central bank with last resort lending obligations to the private sector generally point to the 1825-6 Country Bank crisis and the loss of the Bank's old banking monopoly as the watershed between the two (Calomiris and Haber 2014, pp. 111-25). This paper will argue that the line was already becoming blurry by the second half of the Eighteenth Century.

I

The 1763 crisis was mostly a Continental affair, though 'London was… the starting point of the tension, and… had to take the final strain' (Clapham

1944, p. 236). Its roots lay in government expenditure during the Seven Years War, which in Britain's case included subsidising Frederick of Prussia and providing for her own troops in Hanover. War finance was facilitated by the well-established device of the international bill of exchange drawn on Amsterdam or Hamburg banks (Neal 2015, pp 109-133). The extraordinary issuance of bills during the war reportedly led to 'a whole tribe of financial parvenus' (Wilson 1941, p. 167) who built a 'giddy edifice [built] on a tiny [cash] base' (Kindleberger 2000, p. 123), while the signing of the Peace of Paris on 10 February 1763 and the decision of the Prussian government to revalue its currency in May dealt a dual shock to these arrangements. Hamburg, Amsterdam, Berlin, and eventually London were all involved in the ensuing crisis, whose emblematic episode was the failure of the Amsterdam bank of De Neufville on July 29 (Schnabel and Shin 2004, Quinn & Roberds 2012, Henderson 1962).[5]

The 1772 crisis began in London with the failure of prominent Scottish private banker and East India speculator Alexander Fordyce on June 9, followed by a wave of bank runs on June 22.[6] Though the gloomier predictions of contemporaries regarding the damage to the real economy proved unjustified,[7] the shock to the financial system remained substantial with ripples felt as far as the North American colonies (Price 1980, pp. 124-139, Sheridan 1980). In Scotland most of the private banking system failed, including the large and experimental Ayr Bank (Douglas, Heron & Co.) which had been established with much fanfare only three years earlier (Checkland 1975, pp. 124-35, Hamilton 1956, Munn 1981, pp. 36-39, Saville 1995, pp. 156-66). A subsequent outbreak in Amsterdam the following winter saw the collapse of stock-speculating syndicates and the major bank of Clifford & Sons (Wilson 1941, pp. 169-88), and the crisis closed its circle back in London when Sir George Colebrooke, Chairman of the East India Company and a notorious speculator in his own accord, became its last prominent victim in March 1773. Going beyond Colebrooke's involvement and the role of India stock as the object of speculation for the likes of Fordyce and the Amsterdam syndicates, the financial and political troubles of the East India Company form the backdrop to this episode, culminating in a 1773 government-authorised loan by the Bank of England as part of the provisions of that year's Regulating Acts (Sutherland 1952, pp. 222-9).[8]

Existing claims on the Bank of England's LOLR role in this period are founded on the annual variations of its bills of exchange discount volumes (Clapham 1944, I, pp. 247-8, Lovell 1957, Price 1992). Figure 1 uses daily returns in the Bank ledgers to confirm a correspondence between peaks in discount activity and periods of political and financial alarm. Figures 2 and 3 present the same data as histograms of average weekly discount volumes in the vicinity of the 1763 and 1772 crises respectively (Appendix, Item 6). In autumn 1763 these volumes almost doubled from around £40,000, before gradually retreating to their long term trends by the following spring. In the peak week of October 24 – November 3 average volumes exceeded £130,000, with two days showing individual volumes over £250,000. Although this pattern broadly corresponds to the timeline of the crisis given above, with the De Neufvilles failure in late July potentially forming the driving event, it is also a comparatively subdued and gradual affair compared with the corresponding situation in 1772-3. On that occasion volumes immediately spiked during the first weeks of June, peaking at about twice the 1763 levels. The peak discounting week of June 22-27 exactly coincided with the London bank runs, with over £1,260,000 worth of bills discounted at a daily average of over £250,000. On June 25 alone the Bank discounted nearly as much as the busiest *week* in 1763. The daily average again rose above £100,000 during the second flare-up of the crisis the following winter, before falling below £50,000 by late spring 1773.

Another exceptional feature of the 1772-3 response was that the Bank did not confine itself to discounting. In an unprecedented (and in fact unrepeated in this era) action, it provided direct short-term loans to ten London private bankers for a total of £263,000 (Table 1). It is unknown whether any collateral was secured in return, but it is plainly evident from the ledgers that these were conventional interest-bearing cash loans rather than bill discounts (Appendix, Item 10). This is unusual, as discounts normally represented the main non-Governmental lending by the Bank. Direct loans to private individuals were comparatively rare, while loans on mortgage were almost completely unheard of (Clapham 1944, p. 114). The timing of the loans is also striking, with over £200,000 being disbursed literally on the morrow of the June 22 bank runs. The majority of the loans were repaid within the summer of 1772, the notable exception being Sir George Colebrooke's bank who received funds later than the others in October, and repaid them after his bank stopped payment in April 1773, roughly corresponding to the timeframe of the second, Amsterdam-centred, phase of the crisis.

Even more notably, these short-term credits were supplemented by two long-term loans secured on exactly the kind of mortgage security that contravened the Bank's normal lending practice (Table 2). £160,000 were provided for the benefit of the Scottish trading house of William Alexander & Sons (henceforth: Alexanders), though this assistance was in the form of an undertaking to discount the firm's bills drawn on the London banks of Walpole and Ellison, and Walpole, Clarke and Bourne.[9] In exchange, the Bank received the security on two Grenada plantations that had been granted to the Walpole banks when the bills had been originally drawn. It is likely that this £160,000 is incorporated in the discount ledgers used to construct

Figures 1 and 3, so there is the possibility of double counting there. Nevertheless, as this credit line was approved only on July 9, and as payments were made gradually over the summer of 1772,[10] even double counting does not materially alter the discount picture with its abnormal spike in late June.

A similar discount facility for a total of £300,000 was concurrently approved for the benefit of the ailing Ayr Bank, that was also to be secured on mortgages on the personal estates of the most eminent backers of the project.[11] For reasons that remain unclear the Ayr Bank directors declined this offer, opting instead for the ultimately disastrous alternative of raising £450,000 in London by issuing life annuities at the exorbitant rate of 12-14% per annum (Kosmetatos 2014). In total, the Bank of England showed itself prepared to lend over £720,000 in direct loans, of which £423,250 were actually disbursed.

There is no evidence, however, that the Bank acted in a substantial international capacity on either occasion. There are no accounts belonging to non-British recipients that stand out in receiving substantial funds, and certainly nothing remotely approaching the £1.6 million of Smith's 1763 anecdote. It *is* conceivable that a proportion of the increased discount volumes consisted of foreign bills, as the ledgers only list total daily volumes in sterling and contain no information on the number of bills discounted, the distribution of funds and recipients, or the identity of those recipients (Appendix, item 8). Nevertheless, no individual week (or 6 working day moving window in general) in this period shows discount totals that corroborate Smith's report. The busiest such interval in 1763 barely exceeded £800,000.

Even if Smith's anecdote is dismissed as apocryphal, the least one can say is that in 1763 the Bank "allowed its discounts to increase"; while in 1772 intervention was not only significantly larger and more rapid, but also displayed a variety of additional active efforts that was exceptional (and indeed, unique) for this period. While it did not quite use all the instruments in Jeremiah Harman's famous declaration about the 1825-6 crisis, in 1772 the Bank had also came close to lending money 'by every possible means and in modes [it] had never adopted before'.[12]

II

Does the above amount to last resort lending? The main problem in answering this question is that though the facts of the Bank's actions are hard to dispute, arising as they do from ledger information that is complete and unambiguous, there survives no direct evidence such as correspondence or internal memoranda that documents the Bank's decision making process. In the whole period spanning both crises, the only official change in discount policy was a 13 May 1773 resolution by the Court of Directors to increase the discount rate on foreign bills from 4.5% to 5% starting on June 24 that year, i.e. a whole year *after* the outbreak of the 1772 crisis.[13] The ten short-term loans of summer 1772 are likewise covered in total silence, and though the Court's minutes explicitly document the authorisations of the two longer-term initiatives, they contain no elaboration on the rationale behind them. Ultimately, this absence of direct documentary evidence means that the present discussion cannot properly proceed as an analysis of the history of economic thought as it applies to crisis containment, for the simple and unfortunate reason that we can never be certain of what the principals actually intended. Contemporary discourse can shed some light on some of the issues that might have been in the minds of the Bank of England's directors (or those of the Ministry, Parliament, or any other potential agents of intervention), and we will indeed turn to them in the next section; but in itself this is not enough. What may be feasible instead is to evaluate the Bank's practice against modern last resort lending concepts.

Broadly put, these fall into two categories: (a) the classical approach, usually associated with Bagehot, that focuses on the temporary provision of liquidity for the benefit of any otherwise solvent applicant; (b) the expanded modern central bank approach (Goodhart 1987, 1988 and 1999, Solow 2002), that adds support for insolvent but systemically important financial institutions whose failure might jeopardise the operation of the payments system.

The classical “Bagehot” approach is commonly (though not faithfully to what Bagehot actually wrote)[14] presented as a set of clearly defined “rules” requiring the LOLR to:

1. Pre-announce its readiness to intervene, well before an actual crisis.
2. “Lend to the market”, i.e. target broad money aggregates rather than individual firms, and do so massively.
3. Provide funds to every solvent applicant, but allow insolvent firms to fail, no matter how “systemically important” they may appear.
4. Lend against good paper collateral for a short time, but refuse long-term loans against mortgage collateral.
5. Lend at “high” rates so as to minimise moral hazard and freeloading.

The Bank’s actions on both 1763 and 1772 appear to fall short of this standard. Far from pre-announcing its intentions, the Bank remained silent on both occasions, including in its internal communications. In 1772 it also lent to individual institutions, including two that were eventually wound-up (Alexanders and the Ayr Bank), and moreover did so long term and against mortgage collateral. No penalty interest was ever charged. The Free Banking side of the literature (White 1991, Goodspeed 2016) has expanded on this apparent failure to conform to the Bagehot description for the specific case of Scotland in 1772 by further claiming that: (a) the terms of the abortive Ayr Bank rescue were much too strict for it to be considered a true LOLR action; (b) there was never even an implicit assumption that the Bank of England would serve as a "backstop" of Scottish credit; (c) the serial unlimited liability of Scottish bank partners made an external LOLR superfluous in any case.[15]

On closer observation, the situation is more nuanced. As will be argued in the next section, the Bank did not need to explicitly pre-announce its intention to intervene due to the widespread assumption by contemporaries that it was bound to do just that as the premier guardian of "Public Credit". Moreover, any inclination it might have had to lend at "high" rates was curtailed by the restrictions of usury laws which capped legal interest rates at five per cent per annum.[16] With rates already at or within 0.5% of that ceiling (Appendix, Item 5), room for manoeuvre was limited. The usury cap was often well below what would have been the free market rate during credit shocks, as demonstrated by the 14% annuity rates paid by the Ayr Bank in 1772. In the face of high demand for money, or of poor creditworthiness for the paper offered it, or if it desired to impose punitive conditions to deter moral hazard, the Bank could only ration credit by refusing to discount altogether. Nevertheless, some effort at imposing punitive (or at least prudent for the

Bank's own safety) conditions may be evident in the harsh collateral demands associated with the abortive Ayr Bank loan in 1772. These were considered onerous by contemporaries, with David Hume referring to the proposed commitment by the Ayr Bank's backers as 'madness' (Kosmetatos 2014, p. 176). It is odd that this same harshness has been used as part of the Free Banking argument *against* the Bank's posited LOLR role in 1772, though it is in fact entirely consistent with deterring moral hazard.

The picture is also mixed when it comes to the credit quality of the loans and the collateral secured against them. In the long run, the Bank incurred substantial losses from its 1772 lending, with the outcome of the Alexanders loan proving particularly egregious. That firm could only fend off bankruptcy until 1775 (Price 1973, pp. 694-700), while the temporary capture of Grenada by the French put the mortgaged plantations beyond the Bank's reach until November 1791; by that time only £100,000 of the original £160,000 could be recovered.[17] Some losses related to bills discounts from 1772 were also recorded, with over £42,000 still unrecovered at the turn of the Nineteenth Century (Appendix, Item 9 and Table 1), though it is unclear whether these bills had been discounted before the crisis had started, or whether they were among those presented to the Bank during the discount spike of late June 1772. On the other hand, the Bank earned considerable short-term profits: annual discount revenue rose about 30% for both episodes (£18,000 and

£22,500 for 1762-3 and 1763-4 respectively, and £29,000 for 1772-3),[18] while private loan revenue rose by 78% on the later occasion (£14,000, including £2,600 in interest profit from the ten direct short-term loans, all of which were fully repaid at maturity). It is possible that a wish to profit in the face of increased demand for money may have been part of the Bank's motivation, as much as the desire to act as safety net for the financial system. After all, in this period the Bank remained a private company aiming to turn a profit.

Continuing this exercise of examining the Bank's crisis responses against every point of the classical LOLR "rulebook" risks confusing the true aims of last resort lending with the usual tactics employed to achieve them. Bagehot himself was explicitly concerned with preventing 'any sudden event which creates a sudden demand for actual cash' from translating to the wider economy (Bagehot 1873, pp. 122-130), and his famed "Dictum" was only an expression of the optimal manner to achieve that end. Modern conceptions of last resort lending are not different in this essence, though they do propose a wider operational scope than mere liquidity provision for institutions that find themselves in temporary payments difficulty. A particularly important concern under this framework is to ensure the integrity of the payments system, and by extension to prevent financial contagion from exporting the crisis to the real economy (Schwartz 1987). In turn, this translates to a need to rescue systemically important financial players who may be actually insolvent rather than momentarily illiquid. Banks are singled out as prime candidates for such support due to their crucial role in a fractional reserve financial system.

Though contagion is a frequently used term, it has not a globally accepted definition. For the purposes of the present discussion it will be defined as an idiosyncratic systemic process by which the initial failure of a small number of institutions after an external shock to the economy causally, sequentially, and rapidly leads to the failure of others who were originally insulated from it.[19] Contagious mechanisms include both direct ("domino") financial connections, and informational effects ranging from "irrational panic" to the rational reassessment of risk by investors in the light of newly available information.[20] A high speed of transmission is the common characteristic of both types of contagion. It is exactly this sort of fast spread of financial distress to hitherto healthy parts of the economy that intervention by a LOLR is aiming to forestall, by either containing the initial shock close to its source, or by insulating systemically important nodes of the financial network further along the path of contagion.

The sparseness of the surviving record for the Eighteenth Century does not allow for contagion to be rigorously quantified according to the numerous models available in the literature. With that said, some of the mechanisms through which it may have operated can be demonstrated, especially for

1772-3. They include chains of bilateral credit exposures; credit exposures arising from bills of exchange obligations; asset price falls; bank runs (due to "panic" or otherwise); and credit retrenchment, flight to liquidity, and the subsequent drying up of liquidity - in other words, a "credit crunch" (Kosmetatos 2018, pp. 208-33). Any and all of these mechanisms could have operated in this period, but it was above all the threat of contagion spreading through the bills of exchange network, that made the intervention by a LOLR imperative. Not only was this mechanism both rapid and with a long geographical reach, but it also threatened to cripple the payments system.

The bill drawn on London or Amsterdam bankers (and, increasingly, on aggressive Scottish newcomers like the Ayr Bank) was the long-established cornerstone of both inland and international trade, allowing the fast and safe transfer of funds without the risk and expense of transporting specie, even had specie been abundantly available. Bills of exchange were also used for constructing money market loans in the absence of a modern style interbank market, and as monetary surrogates for countries like Scotland which suffered from monetary shortage (Ashton 1955, p. 186, Neal 1990, pp. 5-9). The bills of exchange world may have been small in absolute magnitude (Capie 2004, Palma 2016), but it possessed a geographical range and flexibility for wholesale money market operations that neither specie nor paper currency could match. These same qualities made it a prime route for the propagation of financial distress in the event of a credit shock. Mass failures of bills signatories or the loss of the bills network to a long-term credit crunch would deprive the financial system of the ability to make long distance payments for trade and raise short-term credit, while also contracting the monetary base.[21] A modern-style LOLR in the Eighteenth Century would be therefore expected to act decisively to forestall this eventuality, both in terms of the size, rapidity and range of its intervention as a whole, but also by directing rescue funds to systemically crucial participants in the bills market.

The key in determining whether the Bank of England acted in those terms in 1763 and 1772 is to consider the monetary tools it employed when intervening in the markets. Here our two most famous authorities hold diametrically opposed positions: Smith's 1763 anecdote identified bullion as the main medium of intervention; Thornton on the other hand claimed that, at least by the time of the 1793 and 1797 emergencies, financiers actively preferred paper Bank of England notes over guineas during crises (Thornton 1802, pp. 112-3). Existing literature, based as usual on annual returns, supports Smith by reporting a fall in specie of all sorts by £2.69 million (or 88%) between August 1762 and 1763, and a fall in banknote circulation of £570,000 (or 10%). Similarly, bullion reserves fell by over £1.3 million (or

52%) between February 1772 and 1773, while note circulation apparently remained steady around the £6 million mark.

Looking at the *daily* changes for the one-year period surrounding both crises, however, the picture that emerges is fundamentally different (Figures 4 and 5, Appendix, Figures 1, 2 and 3, and Table 1). Though bullion reserves indeed fell to the alarming minimum of only £351,000 on 1 September 1763, implying some correlation with the De Neufvilles failure a month earlier, specie had in fact been bleeding out of the Bank for most of the year, with the biggest drops occurring around the time of the signing of the Treaty of Paris in January. By the time De Neufvilles failed, reserves had already dwindled by over £2 million to only £600,000. This steady drain can be associated with demobilization costs and the effects of the Prussian recoinage, rather than with an attempt to support a distressed financial system. Daily variations in banknote issuance moreover show a number of sharp temporary falls, most notably of £1.5 million in January and of over £1 million in late July. This implies that redemptions at the Bank outweighed new issuance, which in turn suggests a public flight from paper to bullion rather than an active intervention by the Bank.

By contrast, the most striking features in 1772-3 are the three temporary *upward* jumps in banknote circulation in June and October 1772 and January 1773, i.e. exactly on the outbreak of the various phases of that crisis. The

June jump amounted to over £1 million in paper, almost all of it issued on June 23 and 24. This coincides both with the discount spike on the week of the bank runs of June 22, and with the ten short-dated loans which were disbursed on exactly those two dates. The fall in bullion reserves on the other hand is much more gradual and subdued, with a peak-to-trough drop of about £200,000 between June 16 and July 17. At the same time, cash kept at the till also jumped by around £580,000 in roughly the same period.[22] This suggests that the week separating Fordyce's flight on June 9 and the bank runs of June 22 followed the 1763 pattern, with note redemptions outweighing issues and bullion draining from the Bank. After June 22, however, the Bank made a large new paper issue: some went to replenish the depleted cash at the till, but the greatest part ended up as bills discounts and direct loans to London bankers. This fits well with Thornton's narrative of "ordinary people" demanding gold for their banknotes during the initial stages of a crisis, while London bankers instead received banknotes. This extra £1 million in paper represented a 17% increase in the Bank's note issuance, or around 13% of the total paper money circulation of the country. Though banknotes comprised only a minor proportion of the circulating medium in this period, this remained a highly concentrated increase, all of it localised in London and with 40% of it directed to just eleven financial firms; this proportion would have been even higher had the Ayr Bank rescue proceeded. Even the two long-term loans to Alexanders and the Ayr Bank were in reality discount facilities for their London bills of exchange, with all payments executed in London with Bank of England paper.

To demonstrate how this worked in practice, let us reconsider the Alexanders deal with the two Walpole banks (Figure 6). In an acceptance loan, borrowers paid commissions to their local bankers for them to draw "accommodation" bills accepted by their London correspondents, in effect renting the established credit of internationally connected banks. These bills were subsequently endorsed to London investors to raise short term capital, or used as a surrogate paper currency. At maturity, bill holders could legally apply for their principal to anyone between the drawer, acceptor, or any endorsers who might have signed on while the bills circulated (Rogers, pp. 170-238, Schnabel and Shin 2004, pp. 935-7). In practice, however, it was common for a London investor to apply to the acceptance house, which was a bank with established premises close to him, rather than the drawer who could live far away (in this case, Scotland), or endorsers who might be private individuals with limited liquid resources to answer his demand. When Alexanders stopped payment in June 1772, holders of their London bills would run on the Walpole banks who had accepted the bills rather than go all the way to Scotland to seek legal redress from the stopped firm or its Scottish correspondents. The Bank of England's emergency discount facility ensured that any such bills circulating in London could be redeemed for banknotes at the Bank's window. This served to stop the flow of financial contagion close to its source, and moreover did so without the trouble and expense of shipping specie to Edinburgh. This closely matches Thornton's description of the Bank supporting country banks during financial crises (Thornton 1802, p. 180-1), and represents the rapid and efficient action one might expect of a LOLR.

Were the Walpole banks and the other recipients of rescue funds that can be positively identified truly systemically important? The Ayr Bank is probably the best such candidate, being one of the largest banks in Scotland accounting for a quarter of its banknote issuance, a fifth of its private bank capital, and almost a third of its long-term bank assets (Table 3). Going beyond mere size, the Ayr Bank's heavy involvement in the London bills market, to the extent of a third of its assets and almost half of its liabilities, made it a potential vector of credit contagion. This dependence on bills of exchange arose from its need to support its banknotes with cash and cash-like instruments (Figure 7). The convertibility of Scottish paper money to specie had always been more a fiction than a rigid rule, as what really backed the various banknote issues was a mixture of a little bullion and rather more bills accepted by a reputable London counterparty (Checkland 1975, pp. 184-5, Thornton 1802 p. 208). Maturing bills were repaid in yet more banknotes or in newly drafted longer-dated bills accepted by a London correspondent – a process known as “swivelling”. This continued and massive traffic gave the Ayr Bank a central position in the flow of asset-side contagion once the June 1772 shock led to a credit freeze in the London money markets. These connections can be demonstrated in a 1771 transaction that originated when Parliament voted £72,000 to discharge certain government debts in Scotland (Figure 8).[23] Since it was impractical and expensive to ship specie or Bank of England notes, Parliament instead supplied the funds to John Fordyce, one of the Receivers General for Scotland and a banker with London and Edinburgh interests. In turn, he arranged to provide the Ayr Bank with London bills accepted by the City banker Alexander Fordyce, who also happened to be his distant cousin, in exchange for the bank undertaking to pay the Government’s Scottish debts with its banknotes. The transaction allowed Parliament to pay its debts cheaply, the Ayr Bank to circulate its notes in Scotland and to obtain bills accepted by a reputable London banker (as Alexander Fordyce was very much at the time) for its financing operations, and both Fordyces to collect substantial commissions.

When the June 1772 broke out in London, the correspondents the Ayr Bank was depending for its money market financing operations either stopped payment, or otherwise refused to accept any more of its bills. At the same time, the bank experienced a note run which discredited its paper as means to pay for its other liabilities. This meant that the £600,000 of its outstanding bills circulating in London could neither be paid for, nor rolled over. This would inevitably lead to a legal bankruptcy.[24] As far as the Bank of England was concerned, if the Ayr Bank *also* failed then any bills it had already endorsed to its correspondents would transmit contagion back to London. Since the usual maturity of bills of exchange was 50-70 days after issue, this was an imminent danger requiring a rapid and sizeable response (Appendix, Items 7, 8). The proposed discount facility for £300,000 of Ayr Bank bills fits both these requirements.

III

The previous mention of the Fordyce cousins raises the possibility that social position and family ties rather than systemic concerns may have influenced the distribution of the Bank of England's largesse. Several of the 1772 principals were indeed well-connected: John Fordyce was the brother-in-law of the Duke of Gordon, while his cousin and originator of the 1772 crash was the son-in-law of the Earl of Balcarres. Among the Ayr Bank's backers were two dukes, two earls, two future Lord Advocates for Scotland, and numerous knights and members of the gentry. The main partner of the two Walpole banks involved in the Alexanders rescue was a cousin of Horace Walpole and nephew of the notoriously nepotistic former Prime Minister – in his case, "Bob" was really his uncle! Sir George Colebrooke was an especially controversial beneficiary: as well a prominent City banker and Chairman of the East India Company at a time when the Government was about to intervene in its fractious affairs, he was also a notorious Alley speculator who even at the time of receiving Bank of England loans was engaged in an elaborate (but ultimately doomed) attempt to corner the world commodity markets (Sutherland 1937).[25] Though Colebrooke's systemically important status was assumed by many, including the King himself,[26] it is still legitimate to wonder whether such a quintessential insider was assisted solely out of systemic concerns. Alexander Fordyce's partners later complained about the Bank's 'uncustomary interposition' which favoured one speculator over another:

> The Bank Directors… ventured to advance immense sums to Sir George [Colebrooke] and other bankers… Sir George had against me £110,000 India Stock, which by the Bank supporting him did not come to market… Had not [he] and several other Bankers been supported I would have recovered my fortune… [He] and a few friends were saved at our expense.[27]

With that said, the favouritism argument can only be taken so far. Both Fordyces failed, and eventually so did Colebrooke despite all the aid he received or his apparent clout.[28] The Ayr Bank was eventually wound up, albeit in a more orderly fashion than Colebrooke's bankruptcy. The likeliest interpretation remains that systemically important players were saved while contagion was still a danger, but were left to fend for themselves after the crisis was safely contained.

The danger of contagion was often pointed out by contemporaries, who even used the very word on occasion.[29] Sir William Forbes identified Alexander Fordyce's failure as 'the spark that set off the mine' in 1772,[30] while James Boswell emphasized the rapid progress of the shock in Scotland by describing it as just that: 'like a company connected by an electrical wire', he wrote, 'the people in every corner of the country have almost instantaneously received the same shock'.[31] The Russian consul in Amsterdam connected a big bankruptcy in Genoa in February 1773 to the earlier troubles in Amsterdam, 'the centre from which… almost all derive their movement' (Braudel 1992, pp 268-9). The London press warned that 'such [were] the connexions of trade that the English could not feel complacent about the distress of Scottish bankers',[32] and after the failure of Clifford & Sons stressed that the earlier failures in London were

> in no way as alarming as the late bankruptcy at Amsterdam is now; the C[lifford]s were generally considered as the second house in Europe, and France, we hear, will be particularly involved in their misfortunes. Commerce is of so extensive a nature, that the failure of a great house in another country is very little different to a failure in our own.[33]

Contagion claims often followed the stereotypical "investor panic" narrative and were no doubt embellished by press hyperbole. Occasionally though they displayed an intuition of the possible mechanisms at work not very different from modern definitions. In 1763, the *Scots Magazine* described the propagation of that crisis in terms that included both direct credit exposures and rational investor retrenchment in the face of a credit crunch:

> The impossibility of discounting on any security after De Neufvilles failure, and the stagnation of the exchanges… obliged every one to take care of himself; and most found themselves bare enough. In these circumstances Mess. Grills were obliged to stop payment; which increased the calamity, and made it the less practicable to stem the torrent; no less than 600,*000l*. Sterling being required to take up the paper of these two houses, to prevent the fall of the houses at Hamburg.[34]

Accordingly, the prevailing conviction was that active containment measures were desirable and necessary. In Scotland, George Home and Henry Dundas, respectively the Ayr Bank's liquidation manager and the most influential Scottish politician of his time, later debated the need for strengthening the Bank of Scotland and the Royal Bank of Scotland so as to act 'as guardians in some measure of the Public Credit in Scotland' during future crises. In the absence of such powerful containment agents, they agreed,

> A sudden check given to Credit [would result to] a proportional check… given to the Industry of the Country, the consequences of

> which would be severely felt by all Banks in a diminution of their revenue, and might even for a time effect the peace and good order of the Society, by the number of People that would be thrown out of employment, rendered desperate by their wants if they remained at home, or obliged to leave their Country in search of subsistence.[35]

Above all, it was the Bank of England that was widely identified as 'the stronghold of public credit which [it behoved it] well to fortify amidst the present shocks'.[36] It really was not necessary for it to formally announce its intention to intervene as required by the classical LOLR prescription, as the conviction of its unique resources and responsibilities was universal and extended even to occasional allegations of its being overly timid. The same George Home complained that the shock arising from the 1772 London bank runs had been allowed to spread to Edinburgh when

> the Bank of England*, who alone could stem the torrent by a liberal discount*, withheld even the usual supplies which increased the evil. They saw their error when too late, and found millions insufficient to remedy what a few hundred thousands would have prevented.[37]

It is striking that no other potential intervention agent was ever discussed in the same terms. The British government's main concern was the struggle for control of the East India Company, which was eventually expressed through £1.4 million loan aimed to tidy over its ailing finances at the price of some loss of independence. Though this loan was technically provided by the Bank of England - at the guarantee of the Government - it is doubtful that it should be included in any discussion of last resort lending. For one, there is its delayed timing, coming as it did a year after the first outbreak of the 1772 crisis. Furthermore, it was only made after the Bank first suspended the rolling short-term loans of £400,000-600,000 it had hitherto provided to the Company as working capital ahead of the latter's annual September sale.[38] Though as before there is no record of the Bank's motives, it remains possible (but unprovable) that it either considered itself overcommitted in the various rescue activities outlined earlier, or that it precipitated the Company's predicament in order to open the way for the Ministry to obtain a measure of control over it.

Claims by the Free Banking side of the literature that unlimited liability among the many co-partners of Scottish country banks (such as the Ayr Bank) pooled resources in a manner that their English competitors could not match (Goodspeed 2015, pp. 92-123), in effect acting as a LOLR by proxy, are hard to credit due to the very slow timescales of this process. A good rule of thumb for an efficient last resort mechanism is that containment actions should proceed at timescales that are commensurate to those of the main contagion mechanisms they are aiming to forestall. As was argued in the previous section, by far the most important of these mechanisms in 1772-3 involved the role of bills of exchange in forming money-market loans over long distances. As bills had a maturity of three months at most, any containment action needed to be deployed within this timeframe to prevent bankruptcies among bills endorsers, drawers, and acceptors who might be unable to answer for them at maturity; and any such bankruptcies would in turn spread contagion via other bills circulating with their (now suspect) signatures on them. Such a quick response would be also helpful in stemming other contagion routes, from simply assuaging "panic", to preventing bankruptcy commissions unconnected with bills finance from being formed. The Bank of England's response in the summer of 1772-3 was fast enough to fit all these criteria. By comparison, establishing the joint-liability of the Ayr Bank's partners took six years, with the landmark Court of Session ruling in 1778 and appeals to this decision still made a year after that (Faculty of Advocates 1791, pp. 57-9).[39] Nor could the Ayr Bank creditors be certain that the value of the assets being liquidated would satisfy their claims, even if these were upheld in the courts. Asset sales, mostly of landed property, occurred in a fire-sale environment, with numerous bankruptcies among the liable partners, over half of whom failed in one way or another (Kosmetatos 2014, pp. 181-7). It is hard to see how an operation that took so long, led to losses among shareholders that were 50% larger than the total losses associated with the Darien disaster earlier in the century, and which reportedly led to most of the estates in Ayrshire changing hands, can be equated with the rapid liquidity-provision and contagion-containment parts of a LOLR's brief.

The preceding discussion does not imply that the Bank of England was alone in reacting quickly to support financiers who were imperilled by the crises. The Hamburg Senate in 1763 and the City of Amsterdam in 1772 respectively organized Loan Chambers intended to advance money 'on goods, or good bills, to such persons as may be in immediate want of money, at a moderate interest'.[40] De Neufvilles in 1763 and Cliffords in 1772 were initially supported by the Amsterdam merchant and banking community, though both efforts ultimately proved fruitless (Buist 1974, p. 13).[41] Horneca, Hogger and Co., 'who do everything for France and Sweden' (Braudel 1992, pp. 271-2), were reportedly saved in 1772 first by 300,000 florins that were collected for them in one night, and subsequently by 'a coachload of gold coin' worth a million florins that arrived from Paris.[42] In Scotland, the Duke of Argyll announced that Ayr banknotes would be accepted as part of his estate business even after that bank had stopped payment (Saville 1995, p. 165), while the Dukes of Buccleuch and Queensberry personally guaranteed its annuities and later provided mortgages to secure the transferrable bonds that were issued to redeem them**.** In England, an apparent "Lifeboat" facility disbursed £89,140 over the course of a month for the benefit of the important London bank of Glyn & Hallifax after it was forced to temporarily suspend payments on the fateful day of 22 June 1772.[43] Even if the more apocryphal press figures are discounted, prompt private sector intervention certainly took place and it may even have been substantial. There is nothing, however, to preclude such initiatives even under a modern, formally established LOLR system. Nor is there anything in the LOLR concept that requires it to be the *unique* agent of intervention, only that it must act as the ultimate backstop to the financial system. The comparative scale of the Bank of England's resources in the mid-Eighteenth Century, together with the universal contemporary acknowledgement of its unique position, present it as the likeliest such agent. The only private initiative that certainly took place quickly enough in either crisis and was of similar scale to the Bank of England's intervention was the Ayr Bank's calamitous annuity issue. One might indeed argue that its disastrous consequences served to prove the Bank of England's superiority as a rescue agent in a nutshell: not only were the Ayr annuities expensive and badly implemented, but they eventually required another public arranged rescue before they could be finally discharged.[44]

IV

With the benefit of hindsight, the containment of both crises appears to have been successful. Despite contemporary claims of severe economic and social dislocation, the wider economy recovered quickly on both occasions

(Kosmetatos 2018, pp. 255-71). The financial world also shrugged off any lingering effects, with bank balance sheets quickly expanding again and new country banks replacing those that had failed (Joslin 1954, p. 173, Pressnell 1956, p. 537). Even in Scotland, where all but two private banks failed in June 1772 and where the Ayr Bank could only unwind itself with immense loss over a period of several decades, the survivors displayed resilience and continued innovativeness by introducing branch banking only a few years later.[45] Attributing this quick recovery specifically to the Bank of England's actions is of course causal reductionism. After all, the crises could have been so minor as to not significantly endanger the financial system, notwithstanding contemporary hyperbole. Nor does successful containment in itself imply that the Bank of England acted as a LOLR. The absence of direct documentary evidence of the motives of its Court of Directors prevents us from positively establishing whether the Bank was a conscious backstop of the financial system. It is plausible that the Bank was concerned with the continued health of the financial system as part of its widely assumed role of guardian of "Public Credit", though politics probably played a part in its consideration as well, particularly so for the East India loan which, consciously or not, supported the Government's ongoing efforts to influence the Company's affairs.

Even without firm evidence concerning its motives however, we can still conclude that the Bank's *practice* came remarkably close to modern expanded conceptions of last resort lending, incorporating both temporary liquidity injection and the preservation of systemically important nodes of the payments system. The case is weakest when it comes to 1763 where the limited surviving data from that episode hint to a conventional note run rather than an active effort to contain the impact of the continental crisis. On the other hand, the 1772 intervention is notable for its scope, size, and rapidity. Although the first articulated LOLR theory still lay thirty years in the future, the Bank's practices were already developed enough that they were implemented quickly and without much controversy. The complete absence of internal Bank debate could indeed be seen as an indication that intervention was not especially contentious. More importantly, the 1772 response displayed a remarkable focus on the one area of the financial system whose continued malfunction could have acted as an avenue for contagion: the London bills market. Ensuring its survival was the surest way to break the contagion chain close to its origin by using cheap paper banknotes rather than costly bullion, and also supported an instrument that was widely used to construct money-market loans and as a currency surrogate. This was especially important for Scotland, where the Ayr Bank's £224,000 of suddenly non-convertible banknotes represented a major part of an already insufficient paper money supply for the country. The Scottish financial system also depended on the London money markets as a source of short-term acceptance loans and of bills of exchange as monetary surrogates. Not only had the bank runs in Edinburgh in June 1772 drain the Scottish monetary system from what little cash had been available, but the disruption to the London bills market further damaged what was arguably its senior component. By supporting the London money markets, and backing the one monetary instrument that was liquid and broadly accepted, the Bank of England really did act as the backstop of Scottish credit.

Neither of these mid-eighteenth century crises can be included among those seminal upheavals, like 1825-6, 1857, or 1866, that punctuated the discourse on central bank action, and which even led to changes in the legal and monetary framework governing banking practice. But this earlier experience demonstrates that many of the intervention techniques used in those more famous episodes were already being developed by the second half of the Eighteenth Century, even if they were governed by practicality rather than theoretical conviction.

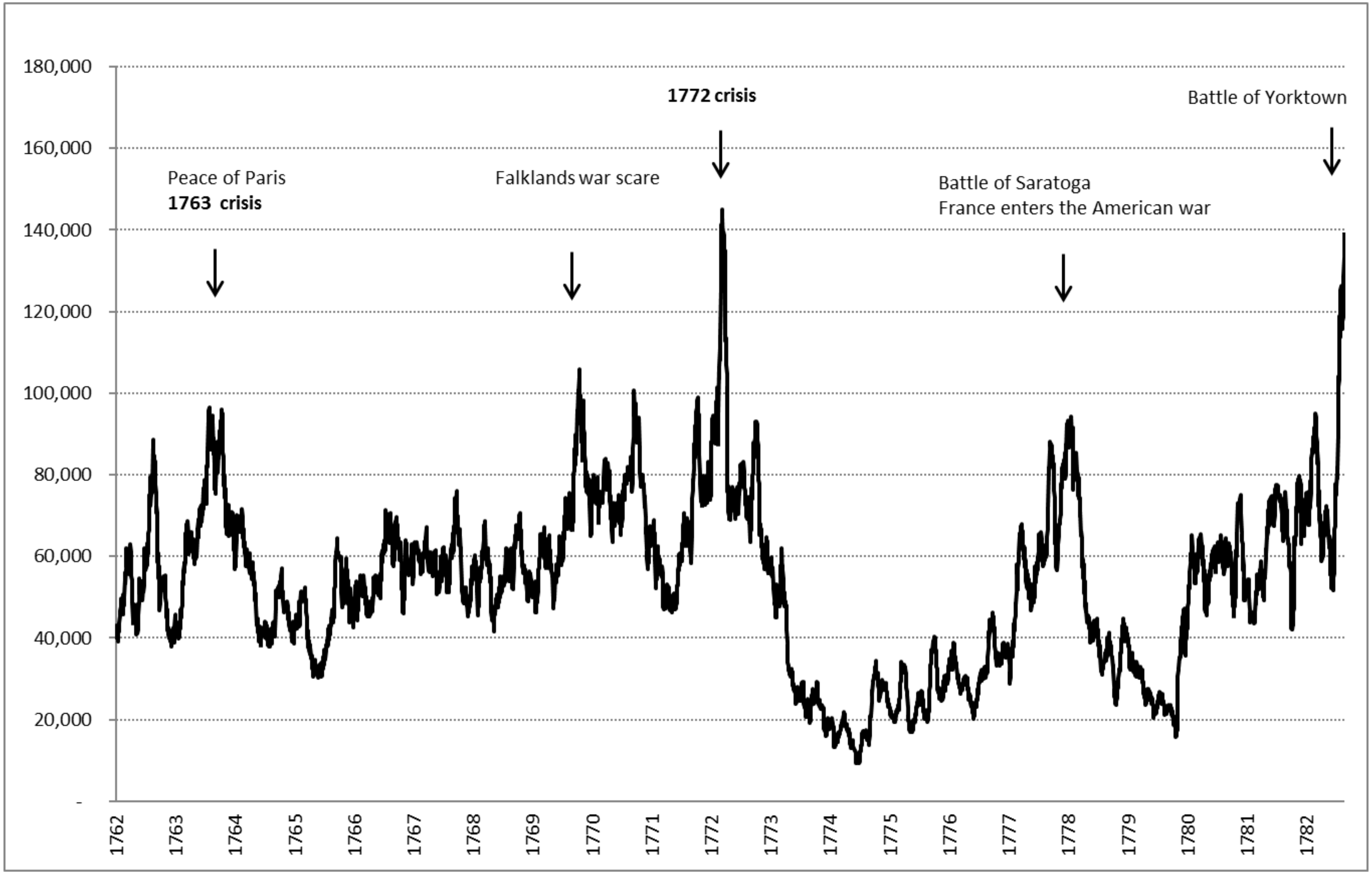

Figure 1. Bank of England daily discount volume, 20-working day moving average, 1762-82. Amounts in pounds sterling. Source: BOE ADM7/18-24.

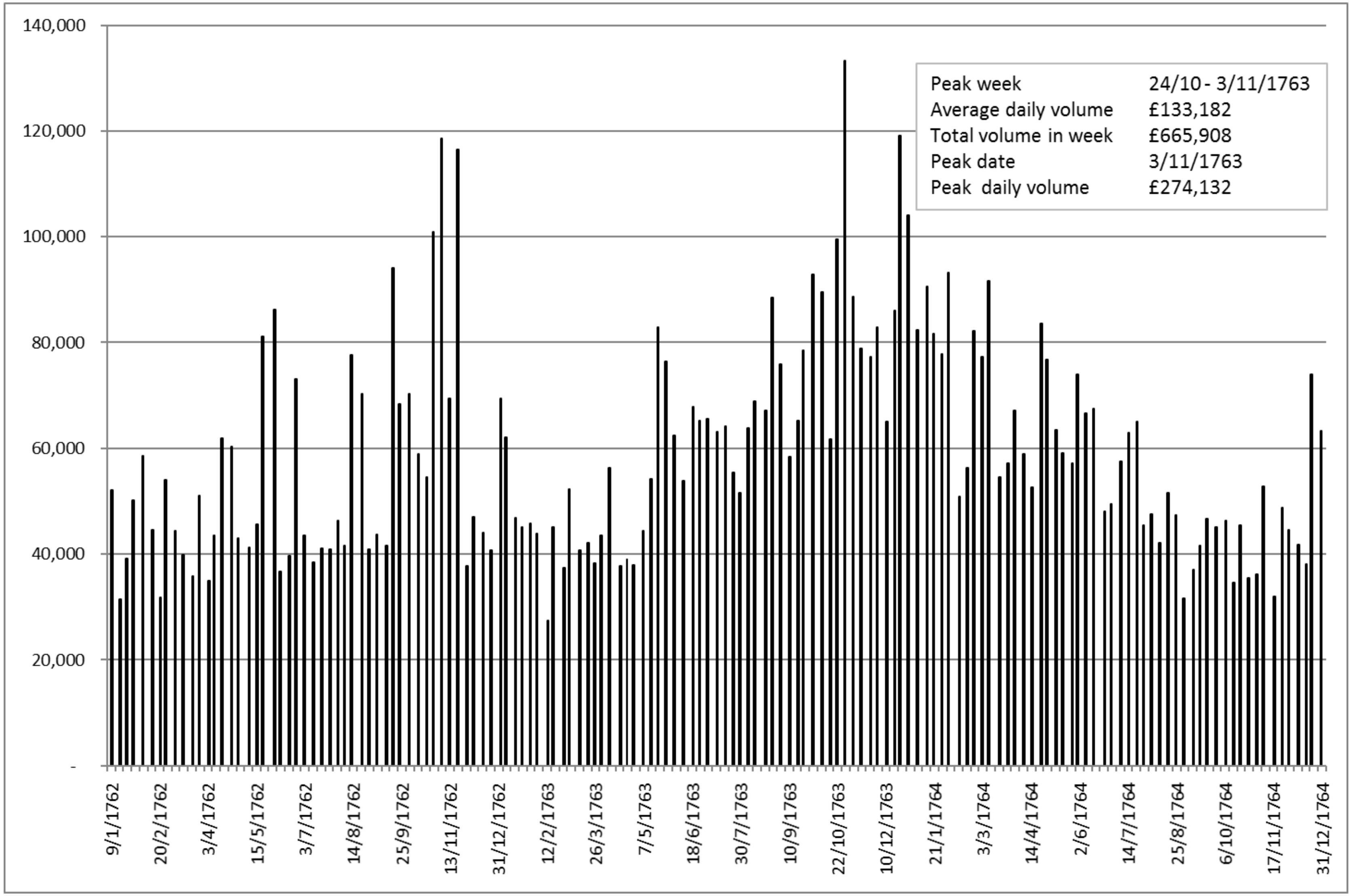

Figure 2. Weekly histogram of average daily volume of bills discounted by the Bank of England, 1762-4. Amounts in pounds sterling. Source: BOE ADM7/18.

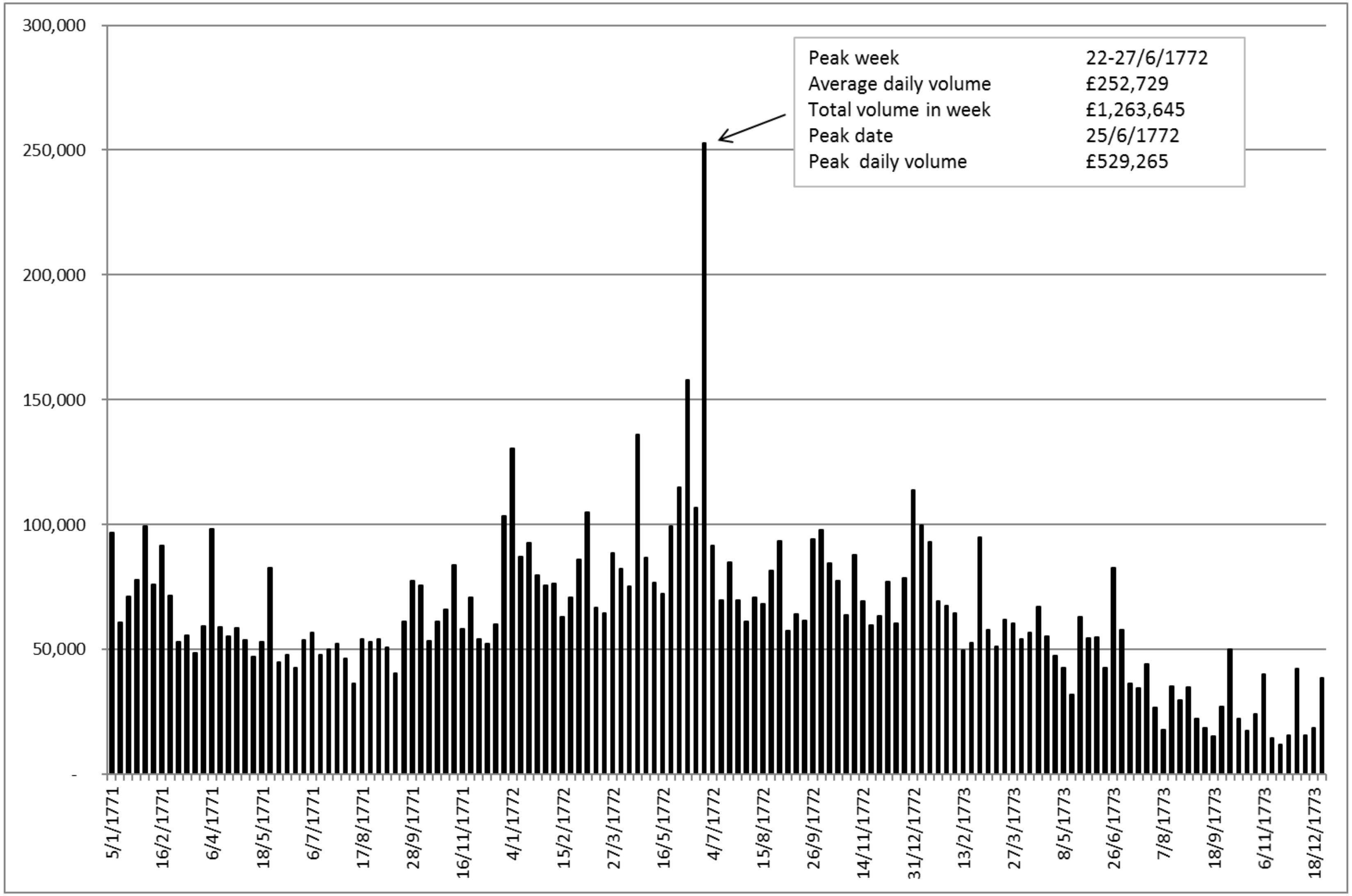

Figure 3. Weekly histogram of average daily volume of bills discounted by the Bank of England, 1761-3. Amounts in pounds sterling. Source: BOE ADM7/20.

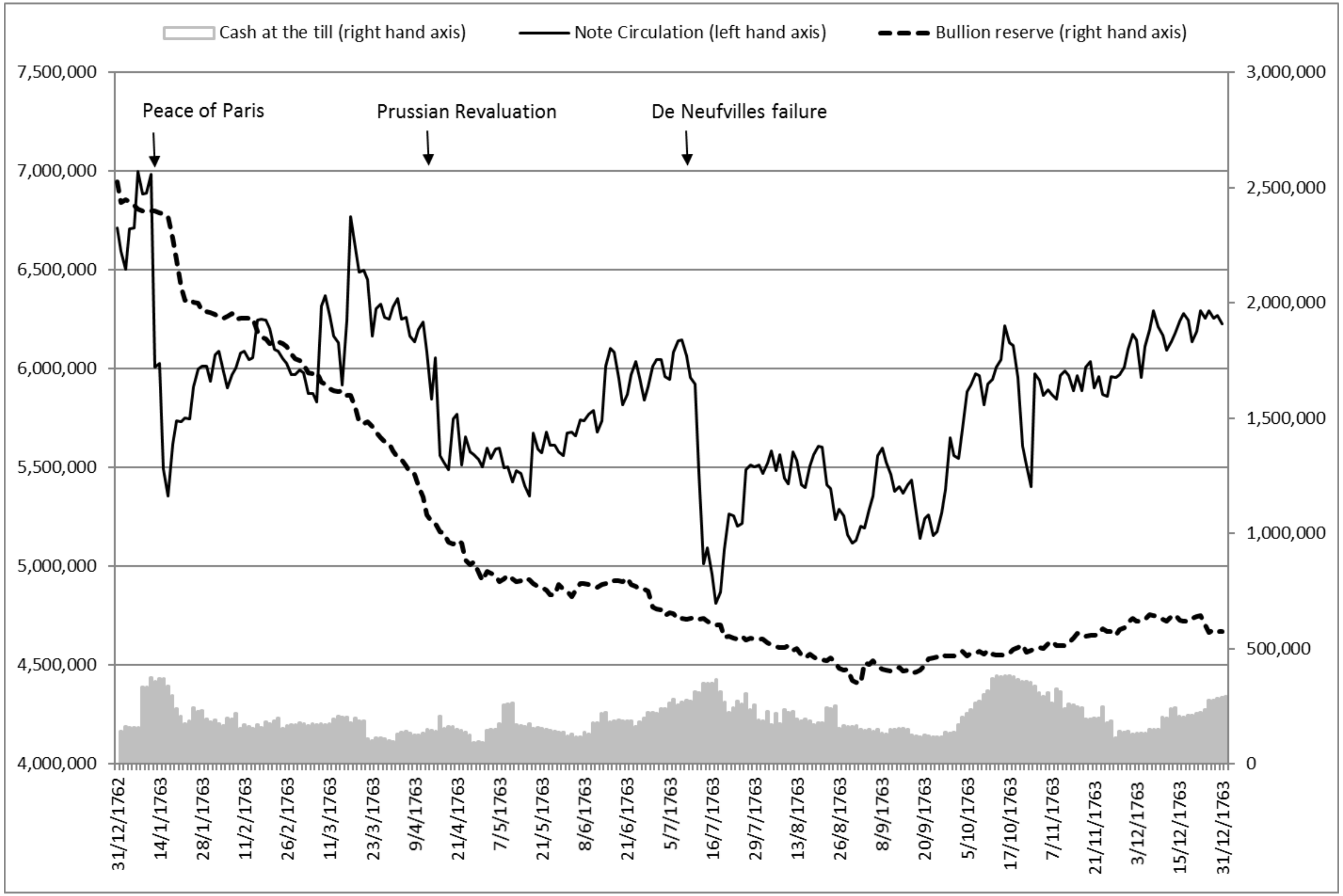

Figure 4. Bank of England note circulation, bullion reserves, and cash at the till, 1763. Amounts in pounds sterling. Source: BOE ADM7/18.

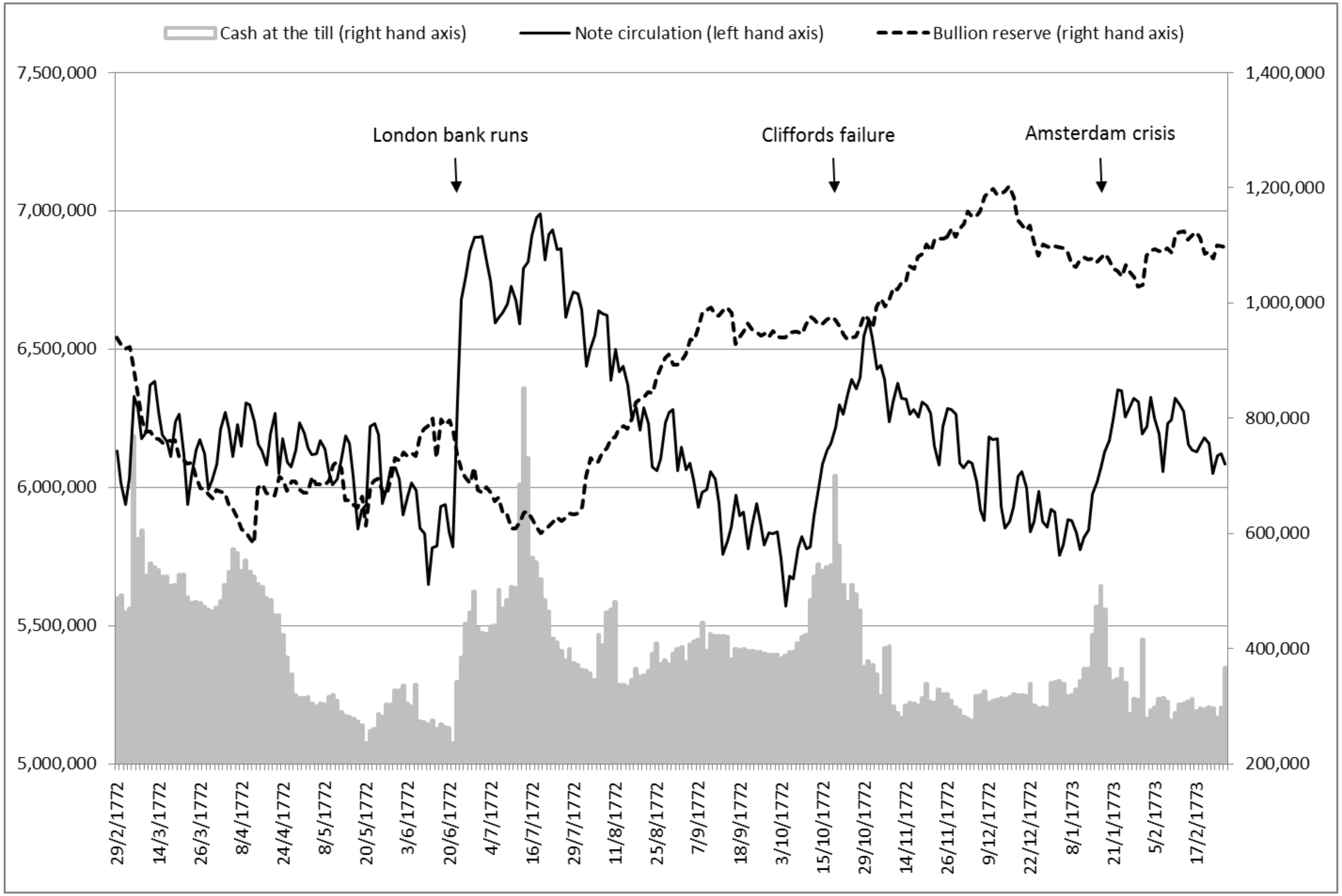

Figure 5. Bank of England note circulation, bullion reserves, and cash at the till, 1772-3. Amounts in pounds sterling. Source: BOE ADM7/20.

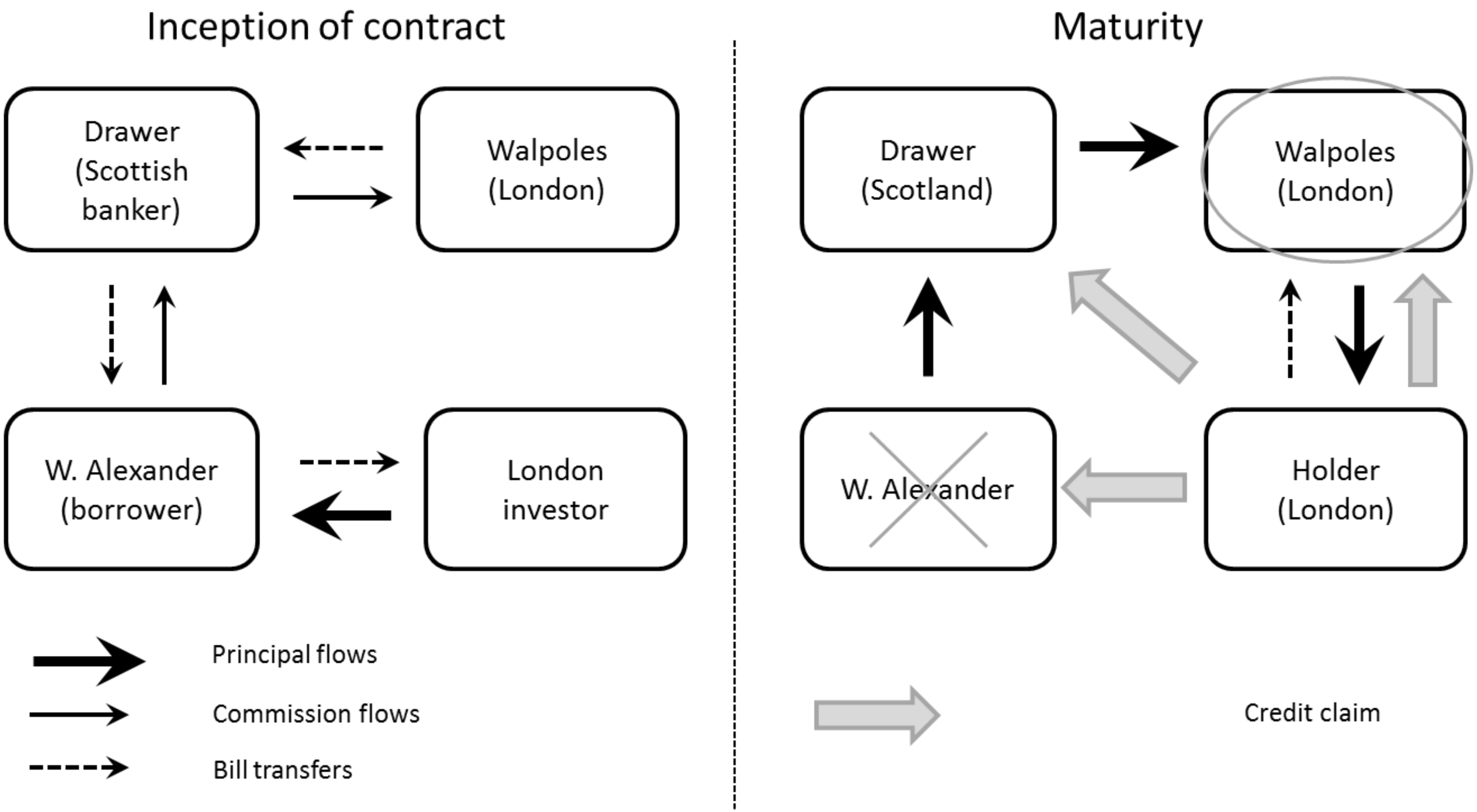

Figure 6. Outline of the acceptance loans struck by William Alexander & Sons with the Walpole banks in London, and optimal targeting of rescue funds in the event of borrower default. The interest payable to the investor is reflected in the discounted price paid by the bill holder at inception. Principal flows at maturity are at the bill's par value. Adapted from Schnabel & Shin, 'Liquidity and Contagion'.

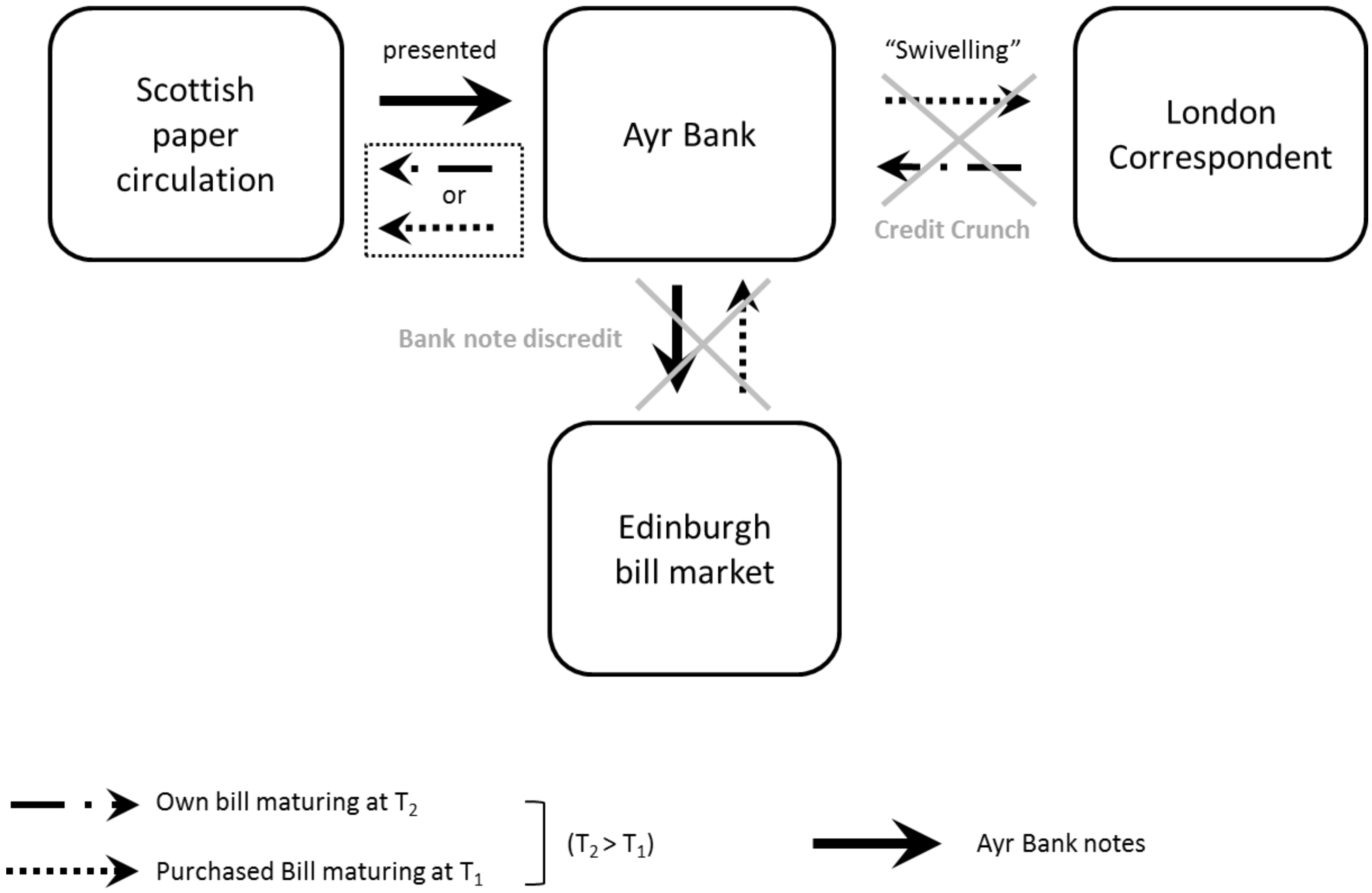

Figure 7. Diagram of the Ayr Bank's liability management and its collapse in June 1772. For simplicity, discount interest and commissions are omitted. Note that specie was partly used in all operations, and that the bank's own bills were used interchangeably with purchased ones to support its note circulation.

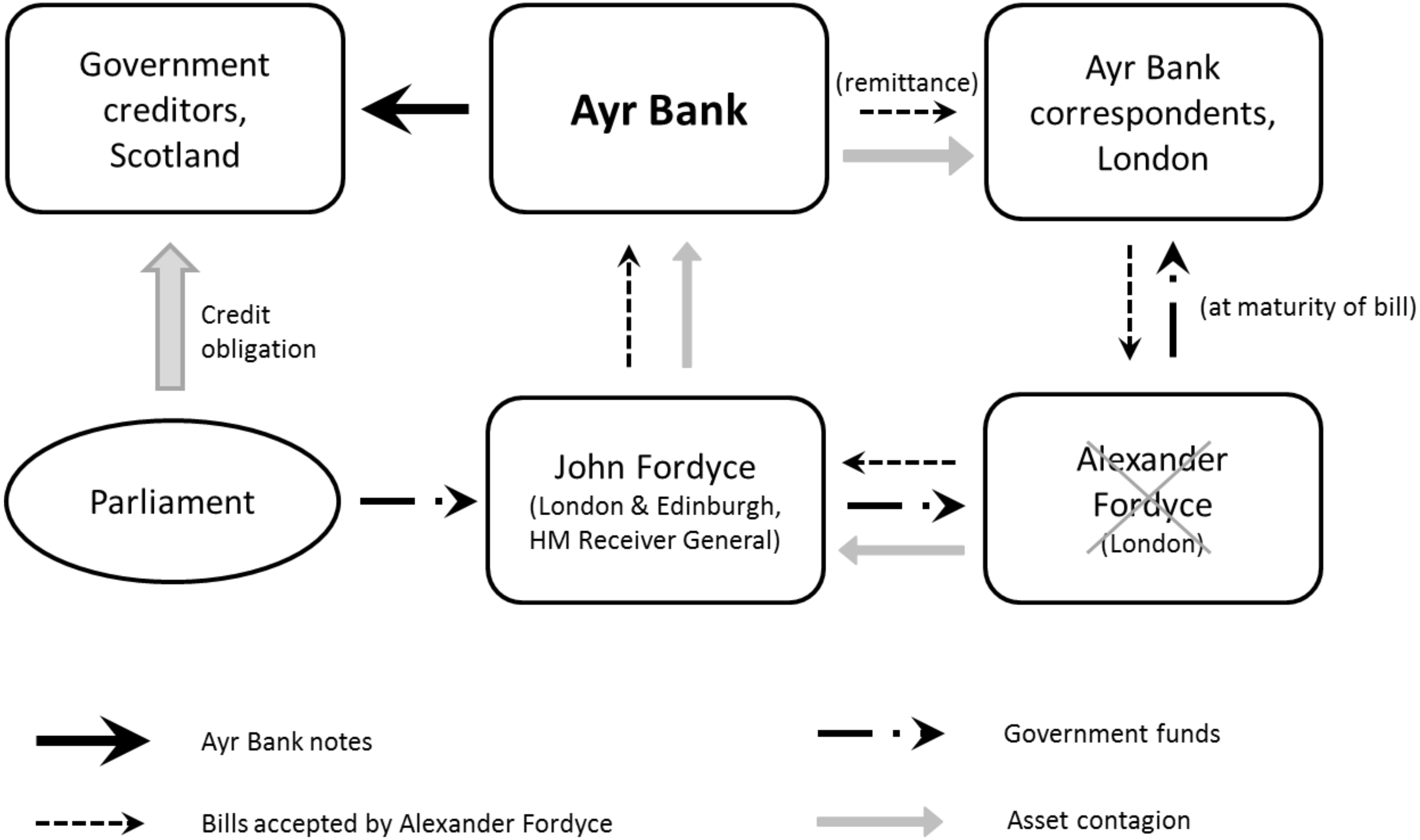

Figure 8. Transaction between the Ayr Bank, John Fordyce, and Alexander Fordyce, demonstrating the Bank's credit exposure to the originator of the London crash, and its central position in the flow of asset contagion. The distinction between John Fordyce's companies (Fordyce & Malcolm, Edinburgh, and Fordyce & Grant, London), as well as the flow of interest and commission have been omitted for simplicity. Source: Fordyce Letter, p. 5

Table 1. Bank of England targeted short-term loans, 1772. Amounts in pounds sterling

Recipient	*Date of Loan*	*Loan Amount*	*Date of Repayment*	*Repayment amount*	*Identification of recipient*
Robert Ladbroke & Co.	23/6/1772	30,000	11/7/1772	10,000	Sir Robert Ladbroke, Son, Rawlinson & Porker, bankers, 10 Lombard Street [a]
			25/7/1772	10,000	
			30/7/1772	10,000	
Sir Charles Asgill & Co.	23/6/1772	25,000	1/7/1772	25,000	Lord Mayor (1757-8), Partner of Vere & Asgill, goldsmith bankers, 70 Threadneedle Street [a]
Joseph Chaplin Hankey, Esq	23/6/1772	10,000	19/8/1772	10,000	With Sir Joseph and Sir Thomas Hankey, goldsmith bankers, 7 Fenchurch Street [a]
Boldero, Kendall & Co.	23/6/1772	9,000	16/2/1773	9,000	Bankers, 77 Lombard Street Different from the more famous Boldero, Carter, Snaith and Carter, 5 Mansion House [a]
Snow, Denne & Co.	23/6/1772	50,750	21/8/1772	50,750	Goldsmith bankers, Temple Bar. Later Strahan, Paul & Co.[a]
John Robert & Henry Drummond	23/6/1772	40,000	21/8/1772	30,000	Goldsmith bankers, Charing Cross [a]
	24/6/1772	30,000	24/12/1772	40,000	
Archibald Stewart & Co.	23/6/1772	8,500	1/7/1772	8,500	The “Douglas” of Douglas, Heron & Co. (the Ayr Bank)
George Shergold	7/6/1772	20,000	8/9/1772	20,000	Broker, Sun-court, Threadneedle Street [b]
Dorrien, Rucker & Co.	8/9/1772	20,000	11/11/1772	2,000	Bankers, 25 Finch Lane [a]
			13/1/1773	3,000	
			3/2/1773	15,000	
Sir George Colebrooke	16/10/1772	20,000	20/4/1773	20,000	Banker, 62 Threadneedle Street. [a] Chairman of the East India Company

Sources: BOE ADM7/20 fos. 691-4; [a] Hilton Price, *Handbook of London Bankers*; [b] *Lloyd's Evening Post and British Chronicle*, June 30, 1763.

Table 2. Summary of Bank of England's direct interventions, 1772-3. Amounts in pounds sterling

Total short-dated advances (from Table 1)	**263,250**	
(of which made only on 23-24 June 1772)		203,250
Assistance to William Alexander & Sons, summer 1772	160,000	
Total direct loans made, 1772	**423,250**	
Proposed Ayr Bank discount facility (not concluded)		300,000
Bank's readiness for committing directly, 1772		**723,250**
East India Company commitment through Regulating Acts, 1773	1,400,000	
(less) Bank's rolling pre-crisis East India Company loan, now suspended (approximate)	(400,000 – 600,000)	

Sources: As per Table 1.

Table 3. Ayr Bank systemic position, 22 June 1772. Amounts in thousands of pounds sterling

	Ayr Bank	*Scotland*		*Great Britain*	
Country bank notes	224	868	26%	2,000	11%
Deposits	300	1,149	26%		
Private bank capital	104	500	21%	2,500	4%
Private bank long term assets	825	2,700	31%	12,000	7%
Bills on London (drawn as liabilities)	600 (50%)		most	3-7,000	9-20%
Bills on London (held as assets)	409 (33%)		most	3-7,000	6-14%

Sources: Ayr Bank: Kosmetatos 2014a, p. 171. Scotland: Checkland 1975, p. 235-7. Great Britain: Author's own projections based on Joslin 1954, p. 173, Pressnell 1956, p. 6, Capie, 2004, p. 224, Cameron 1967, p. 32-42, Palma 2017, and Appendix of this text.

[1] The literature is sizeable and longstanding. For a review see Freixas et al 1999, Humphrey and Keleher 1984, Kaufman 1991, Bordo 1989, 1990, 2014, O' Brien 2007, pp. 157-176, Wood 2007.

[2] The term Baring used was *dernier resort*.

[3] Smith, *Wealth of Nations*, II.ii.85. By his own admission, Smith's authority was only hearsay, and he was careful to point out that he could neither affirm the 'greatness of the sum, [nor] the shortness of the time' of this intervention.

[4] It is not only Free Banking supporters who have doubted the Bank's LOLR role in the Eighteenth Century (e.g. Hawtrey 1962, pp. 119-120).

[5] *SM* XXV (1763), pp. 458-60 and 565-7.

[6] *London Evening Post*, 9-11 June 1772.

[7] *SM* XXXIV (1772), pp. 304-18, Walpole, *Correspondence*, pp. 395-6, Boswell, *Reflections*, p. 1

[8] 13 Geo. III, c. 63 & 64

[9] BOE G4/21, fo 265, and Walpole, *Letter.*

[10] By July 23 only £40,000 of the £160,000 had been disbursed, with a further £40,000 authorised to be paid on the 25th (BOE G4/21, fo. 268).

[11] The initial approval by the Court of Directors was made on June 18 (BOE G4/21, fo. 260). The Ayr Bank stopped payment on the 25th.

[12] *Parliamentary Register*, 1832 Committee, q. 2217.

[13] BOE G29/1, fo. 6, G4/21, fo 343, Appendix, item 5.

[14] Goodhart (1999) and Bignon et al (2012) stress the misapprehension of Bagehot supposedly prescribing "penalty" (rather than "high") rates.

[15] Scottish bank "co-partnerships" (Munn 1981, pp. 5-6) were not subject to the 1708 Bank of England Monopoly Act (7 Anne, c. 30) which limited English private banks to a maximum of six partners. In principle therefore they could enjoy a larger equity base: e.g. the Ayr Bank had 237 partners at the time of its stop (Kosmetatos, 2014, p. 168).

[16] Mainly 13 Anne, c. 15.

[17] NAS CS181/6942 and CS222/278, and Walpole, *Letter*, BOE ADM7/27, fos 578-9, 606.

[18] BOE ADM7/18, fos 24-5 and ADM7/20, fos 26-7.

[19] This definition is directly adapted from De Bandt and Hartmann 2002, pp. 251-6. This review article is also a good starting point for approaching the vast literature on financial contagion. For other literature reviews see Allen and Carletti 2013, Forbes 2012, Kaufman 1994, Pritsker 2001, Moser 2003, Pericoli and Sbracia 2003, Van Rijckeghem and Weder 2001.

[20] Bagehot identified several possible contagion mechanisms, including "panic" (p. 122), direct commercial and credit connections (pp. 125-6), and credit crunches (pp. 129-30).

[21] Using Palma/Capie's estimates, this could be as much as a 16% drop (£7 million of bills out of a total monetary base of £42.5 million).

[22] Specifically June 15 -July 14.

[23] Fordyce, *Letter*, p. 5.

[24] For the legal aspects of bankruptcy in this period, see Hoppit 1987, pp. 35-7. Thornton 1802, p. 114, stressed that 'a failure in the punctuality of any one such payment is deemed an act of insolvency'.

[25] Colebrooke, *Retrospection*, I, pp. 205-13. For press attacks on Colebrooke over his many speculations see *General Evening Post*, 17-19 December 1771, *London Evening Post*, 17-19 December 1771, "Publicus", *Public Advertiser*, 24 January 1772, "Veritas", *London Evening*

Post, 15-18 August 1772, *Gazeteer and New Daily Advertiser*, 21 January 1773, *London Evening Post*, 18-20 March 1773, "A Sufferer", *Public Advertiser*, 18 December 1773.

[26] Bodham Donne, *Correspondence of King George,* I, Letter 154, January 1, 1773, p. 121. For other contemporary references to Colebrooke's importance see Smith, *Correspondence*, 10 April 1773, 136, David Hume to Adam Smith, pp. 167-8, NAS GD44/43/88/46, Charles Gordon to the Duke of Gordon, 31 March 1773.

[27] BL Add. 38208, fos 176-7, William James to Charles Jenkinson, September 14, 1775. Similar allegations that Fordyce only failed after being 'unkindly refused assistances which saved others' were made in the press in the autumn of 1772 ("Socius", *Public Ledger*, 10 October 1772, *London Evening Post*, 19-22 and 22-24 September 1772).

[28] Colebrooke went personally bankrupt in 1778. TNA B6/5, fos 126, 212.

[29] *Gazetteer and London Daily Advertiser*, 14 October 1763, *Public Advertiser*, 8 July 1772.

[30] Forbes, *Memoirs*, pp. 39-44.

[31] Boswell (1772), p.1.

[32] *Bingley's Journal*, 20-27 June 1772. This also uses the 'electrical wiring' imagery.

[33] *General Evening Post*, 2-5 January 1773. Similar sentiments were expressed in the *St James's Chronicle*, 7-9 January 1773.

[34] *SM* XXV (1763), p. 459. Contemporary understanding of contagion routes for 1772 can be found in *Johnson letterbook*, 42, 1 July 1772, (pp. 40-1), 47a, 20 August 1772, (p. 45) and 52a, 7 October 1772, (p. 49), *Norton Letterbook,* John Norton to John Hately Norton, 6 August 1772, p. 266, and TNA B1/62 fos 144-7, petition to the Lord Chancellor by Thomas Hallifax vs Thomas William Jolly, 2 August 1773.

[35] BOS Melville Papers, MEL/1, 'Observations by Geo. Home on Bank & Circulation'. This document dates from 1777.

[36] *Bingley's Journal*, 20-27 June 1772.

[37] NAS GD267/22/7/57, George Home to Patrick Home, 29 June 1772. Emphasis added. Home made similar complaints nine months later (NAS GD267/12/8, George Home to Patrick Home, 23 March 1773).

[38] BOE G4/21, fos. 286-7, 290, 292, 294-7, 307, 309, 311, 359.

[39] AA/DC/410/46/3.

[40] *London Chronicle*, 23-26 January 1773, *Middlesex Journal*, 16-19 January 1773. The Dutch facility in 1772 was reported at £180,000.

[41] The attempted rescue of Cliffords 'by their Dutch and English friends' is also mentioned in NAS GD267/3/3/1, George Home to Patrick Home, 11 January 1773.

[42] The *Morning Chronicle*, 6 January 1773, contained a report of Sir Joshua Vanneck dispatching funds to Amsterdam after Cliffords' failure.

[43] TNA B4/21.

[44] Through the 1774 Ayr Bank Act (14 Geo. III, c. 21).

[45] For earlier abortive experiments with branching, including by the Ayr Bank see Checkland 1975, pp. 133-49, Munn 1981, pp. 40-9, Saville 1995, pp. 180-3.

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Appendix

Bank of England sources

In this period covered in this paper, the separation between the Bank of England's Banking Department (dealing with the note issue and the Public Debt) and the Drawing Office (handling private customer accounts) was not yet explicit, though separate ledgers were kept for each. The Drawing Office ledgers (BOE C98) contain one of the few private accounts (the apparent Glyn & Hallifax bridge loan) that are of interest to the 1772 events. Otherwise, the bulk of the findings presented in this paper originate in the Banking Department General Ledger (BOE ADM7). These are double entry manuscript accounts which, along with balance sheets, Profit & Loss statements, accounts relating to the management of the Public Debt, and operating costs (dividends, wages, rents etc), include complete and unbroken daily time series for several assets and liabilities that pertain to this discussion. Some simple operations have been performed to arrive at the information presented here. Specifically:

1. Paper money circulation (Figures 4, 5 and 8) is described in the series for "Specie & Cash Notes" (New and Old Accounts). The net amounts of paper money in circulation directly arise from the balance of the debit and credit sides of these entries, using the levels reported on the formal balance sheet at the end of the previous February as a starting point. For the purposes of simplicity, the New and Old accounts are summed together. By 1763, significant fluctuations in circulation were entirely contained in the New Account; the Old Account was almost dormant, much smaller in size, and would altogether vanish over the following two decades.
2. Other liabilities of interest consist of drawing accounts (i.e. deposits), and promissory notes at 7 days sight (i.e. sight accounts) (Figures 6, 7 and 8). The latter are much smaller

by comparison, and are summed together with drawing accounts for the sake of clarity in the graphs.

3. Turning to assets, bullion holdings (also in Figures 4, 5 and 8) are constructed as the raw sum of entries for 'Treasury or Vault', 'Foreign gold coin', 'Gold in bars', 'Gold at the Mint', 'Silver ingots', and 'Silver pieces of eight'. All bullion (including foreign denominated coin) is stated in the ledger in pounds sterling according to the Bank's own contemporary valuation.[1] This data has not been previously used in the literature. Clapham (pp. 293-8) and Lovell (p. 11) report slightly different numbers based on consolidated annual accounts produced by a Bank committee in 1832, which correct for small amounts of coin included with paper money under the ledger heading of "Cash" (see item 4 below). This corrected time series does not go into daily detail. Despite this, the overall annual picture emerging from the raw 18th century ledger data used in this paper is materially the same with that of these older findings: for instance, for the whole of fiscal 1772 (February 1772- February 1773) Clapham/Lovell report a fall in bullion holdings of £312,000 (compared to £380,000 reported here) to a total of £1,192,000 (compared to £1,204,000 reported here).
4. "Cash at the till" (also in Figures 4, 5 and 8) refers to currency on hand for the use of the cashiers and consists of both banknotes and coin. It is not possible to work out the exact breakdown of each type of currency on a daily basis, but Clapham (as above) claims that the consolidated 1832 annual accounts indicated that the majority was in paper.
5. For bills discounted (Figures 1, 2 and 3), i.e. the short term money loans made by the bank on the security of short dated bills of exchange, we use the debit side entries of the "Bills and Notes Discounted" entry. This represents the daily total amount (actual, not notional) disbursed by the bank on third party paper security. The credit side entries

(not displayed here) correspond to the principal amount of the maturing bills, less any defaults. i.e. they incorporate discount interest (see also items 7 and 8 below). The restrictions of usury laws in the 18th Century meant that rates rarely fluctuated, downwards as well as upwards, and remained constant (and identical) throughout the period covering both crises. The latest rate change had been made on May 1, 1746 to arrive at the maximum possible 5% per annum for inland bills and 4.5% per annum for foreign bills. This latter rate would be also raised to 5% after the 1772 crisis, on May 13, 1773. For a list of all these rate changes, see BOE 13A298/1, 'Volume Of Notes And Statistics Found Amongst Papers Relating To Frank May', fo . 49.

6. We have opted to present these daily discount outlays as histograms of average daily volumes per work week in order to eliminate noise. A work week was typically a 6-day period with Sunday a holiday, though other holidays and similar non-working days often resulted in 5- and 4-day work weeks. This organisation of the data directly follows the structure of the Bank's ledgers, although some infrequent alterations have been necessary so as to avoid the occasional 3- or 8-day week that would only make the histogram more difficult to read. Specifically, 8-day weeks have been split into two 4-day ones, and 3-day weeks have been merged with adjacent 4-day ones to create 7-day periods. This weekly organisation adds more clarity than existing presentations of the same archival information available in the literature, as the Bank's activity followed a fairly consistent weekly pattern throughout this period. Discounts typically started slowly on a Monday, peaked during mid-week (generally on a Thursday), and tapered-off at the end of the week. This pattern is apparent as much during low activity weeks as during hectic, crisis-related ones. Plotting the daily discount data would thus result in a needlessly noisy graph due to this internal weekly pattern, while discarding the Bank's

own admitted structure by employing a strict 5- or 7-day moving average, or by summing total volumes over some arbitrary interval (e.g. monthly),[2] could obscure the Bank's overall activity pattern.

7. The overall amount of bills under discount at the Bank at the end of every financial year is listed on the annual balance sheets (included in BOE ADM7).[3] For the purposes of this discussion it is nonetheless more relevant to focus on the Bank's outlays, i.e. the debit side, which has been the basis of the argument by Clapham/Lovell/Price on the Bank's proposed last resort-like lending during crises. As the tenor of bills of exchange seldom exceeded three months, and as the majority of the bills admitted by the Bank most likely had between 40 and 70 days remaining to maturity, the credit side was merely "pulled along" by the debit side with a 2-3 month lag and the inclusion of discount interest (see also item 8 directly below).
8. As mentioned in the text, the BOE ADM7 time series only report daily totals, with no details on the number of individual deals, their principal sizes, interest rates, terms of interest, or the identity of counterparties. When it comes to bills discounts the absence of this information is particularly unfortunate. Detailed daily discount ledgers giving full details of drawers, acceptors, denominations, and tenors for the bills do survive for the period 1702-9 in ledger BOE C28/1-6, but the record is interrupted after that for a century and a half, only to restart in 1847. It is unknown whether the missing years were ever covered in detail. These earlier ledgers confirm that bills accepted for discount generally had 40-70 days left to maturity.
9. Records for defaulted and dishonoured bills were infrequently kept. The recovery of some defaults relating to the 1772 events are listed in the Discount Office Ledger of Unpaid Bill Accounts (BOE C32/2); Table 3 was constructed using these figures. There is

no obviously corresponding ledger for 1763. As indicated in the text, it is impossible to determine whether these bills had been discounted before the outbreak of the crisis and defaulted afterwards, or whether they were included in the great discount spike of June 23, 1772.

10. In addition to the regular time series, the BOE ADM7 ledgers also contain some exceptional entries for persons or firms that are separate from the Drawing Office bank accounts mentioned at the beginning of this note. The rolling loans to the East India Company suspended in the summer of 1772, and the striking ten short-dated direct loans to London bankers collated in Table 1, are such exceptional entries. The ledgers describe the latter as "Money lent them" and *not* as bills discounted; there is a conventional interest calculation (at 5% p.a.) included on the credit side for these, which was never the case for discounts. There is no mention of any security offered for these loans, either on the ledgers, the Bank's daily Journal, or the minutes of its Court of Directors. This is in contrast to the loans to William Alexander & Sons and the Ayr Bank, which had been explicitly authorised by the Court Ayr as discount facilities, and which were secured on specific (and in the case of Alexanders, named) types of mortgaged property.

Additional figures and tables

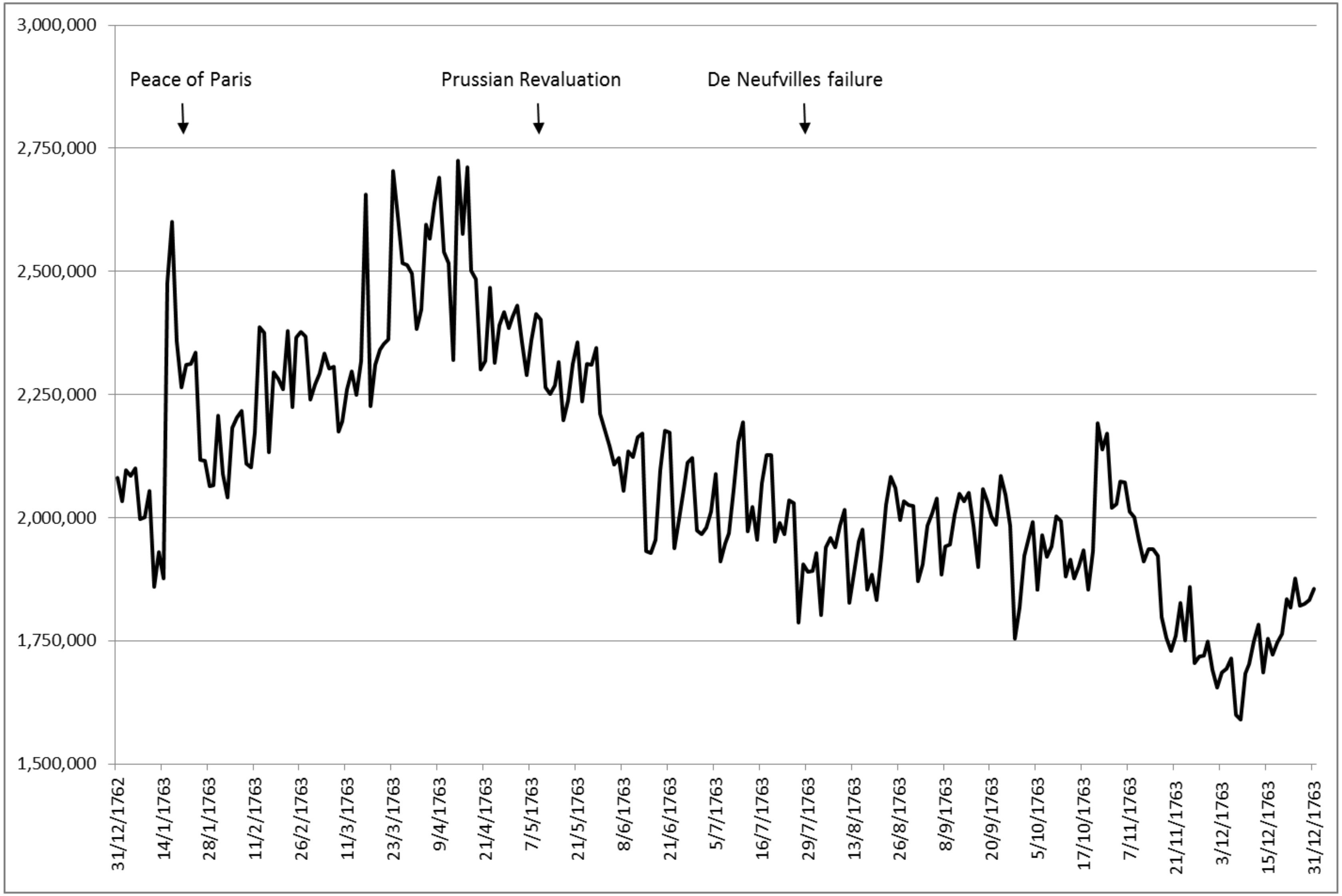

Figure 1. Bank of England drawing and sight account balances, 1763. Amounts in pounds sterling. Source: As per main text, Figure 4.

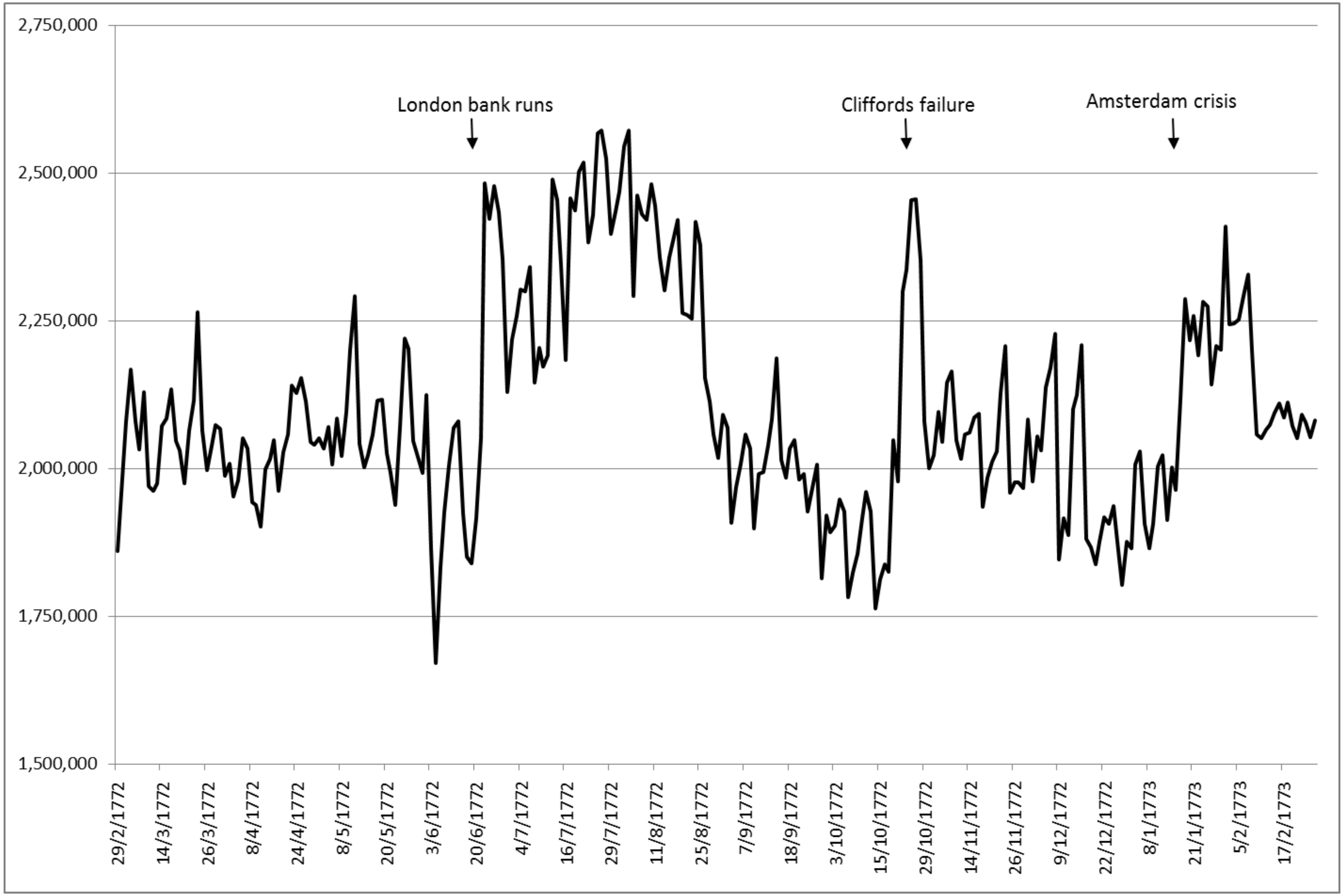

Figure 2. Bank of England drawing and sight account balances, 1772-3. Amounts in pounds sterling. Source: As per main text, Figure 5.

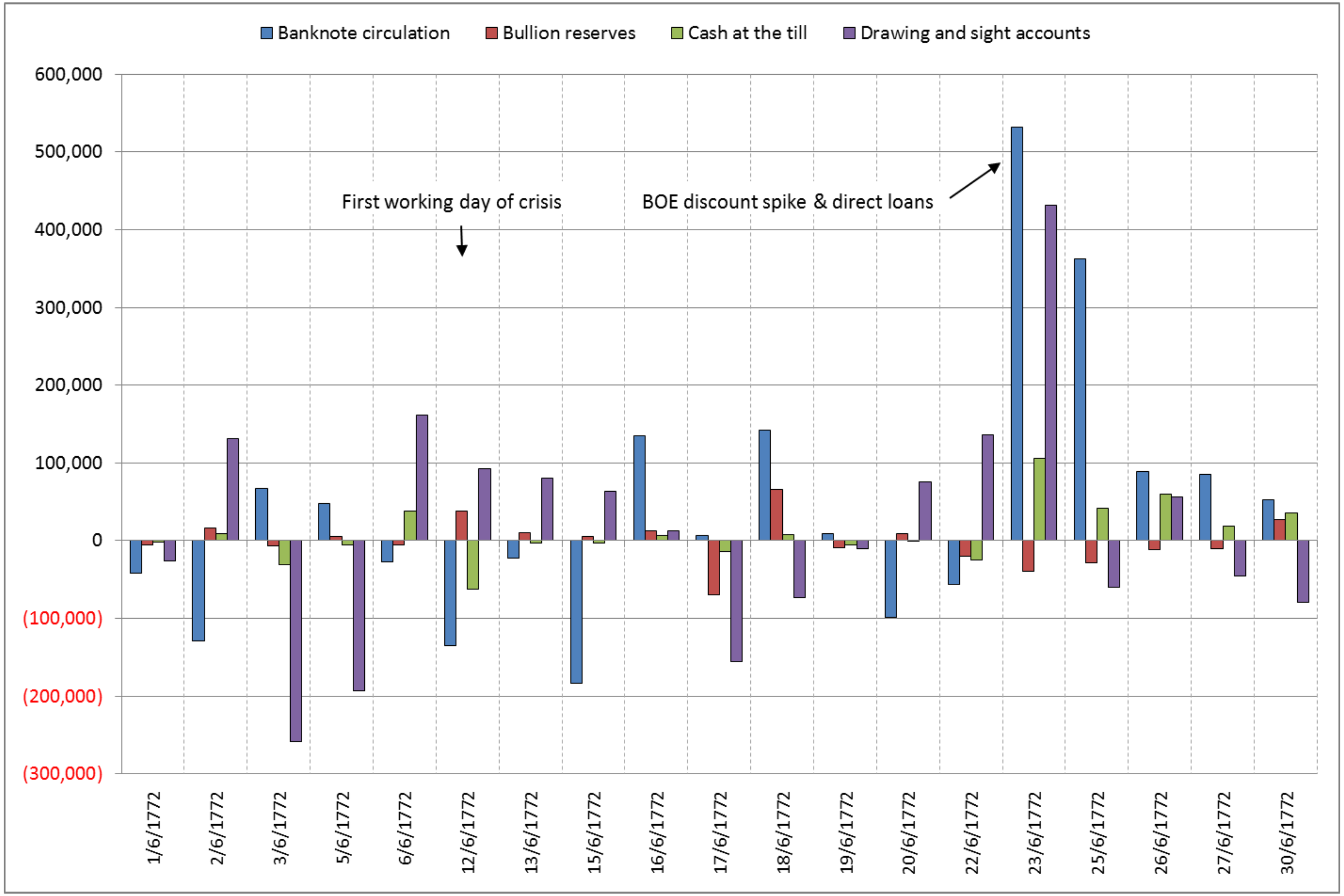

Figure 3. Bank of England daily changes in note circulation, bullion reserves, drawing accounts and cash at the till, June 1772. Amounts in pounds sterling. Source: As per main text, Figure 5.

[1] A separate ledger (BOE 2A109/1) compiled in the 19th century contains some daily information on exchange rates as sourced from Castaing's *Course of the Exchange*. Since the original foreign coin amounts or weight of plate is not listed in the 18th century ledger, it is not possible to check whether these rates can be used to arrive at the ledger valuations for bullion. Since these are the Bank's own contemporary valuations, however, they can be trusted.

[2] Price 1992 uses such monthly averaging

[3] For the period surrounding both crises the levels of total bills under discount at these balance sheet sampling moments were (in thousands of pounds sterling):

1762	1,714
1763	2,253
1764	1,679
1765	N/A - see note below
1766	1,777
1767	1,936
1768	1,648
1769	1,744
1770	2,698
1771	2,557
1772	2,727
1773	2,312

Until 1764 annual balances were compiled as of the end of August, but this was changed in 1766 to the end of February – there are hence no annual accounts for "1765".